

Around the twist:

the sonographic whirlpool sign in a patient with a history of gastroschisis.

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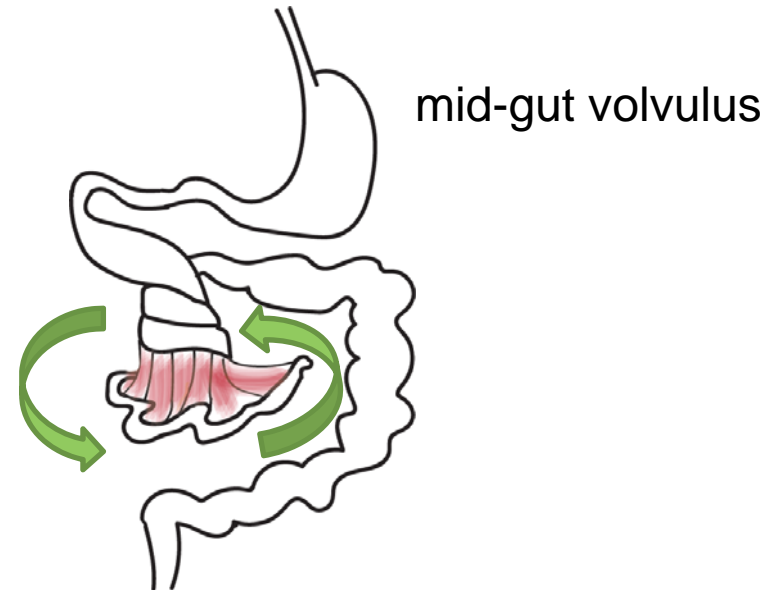
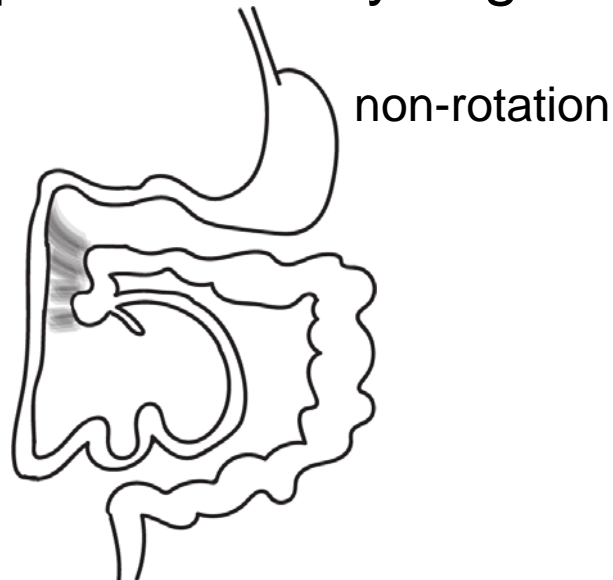
Case presentation

- Two year-old female
- Intermittent non-bilious vomiting
- Diffuse abdominal pain for two weeks
- History of gastroschisis repair as a neonate
 - Initial surgical reduction shortly after birth returned as much bowel as possible
 - Remaining eviscerated bowel placed in silo for five days on ward
 - Wound site and wall defect surgically closed



Gastroschisis and gut rotation

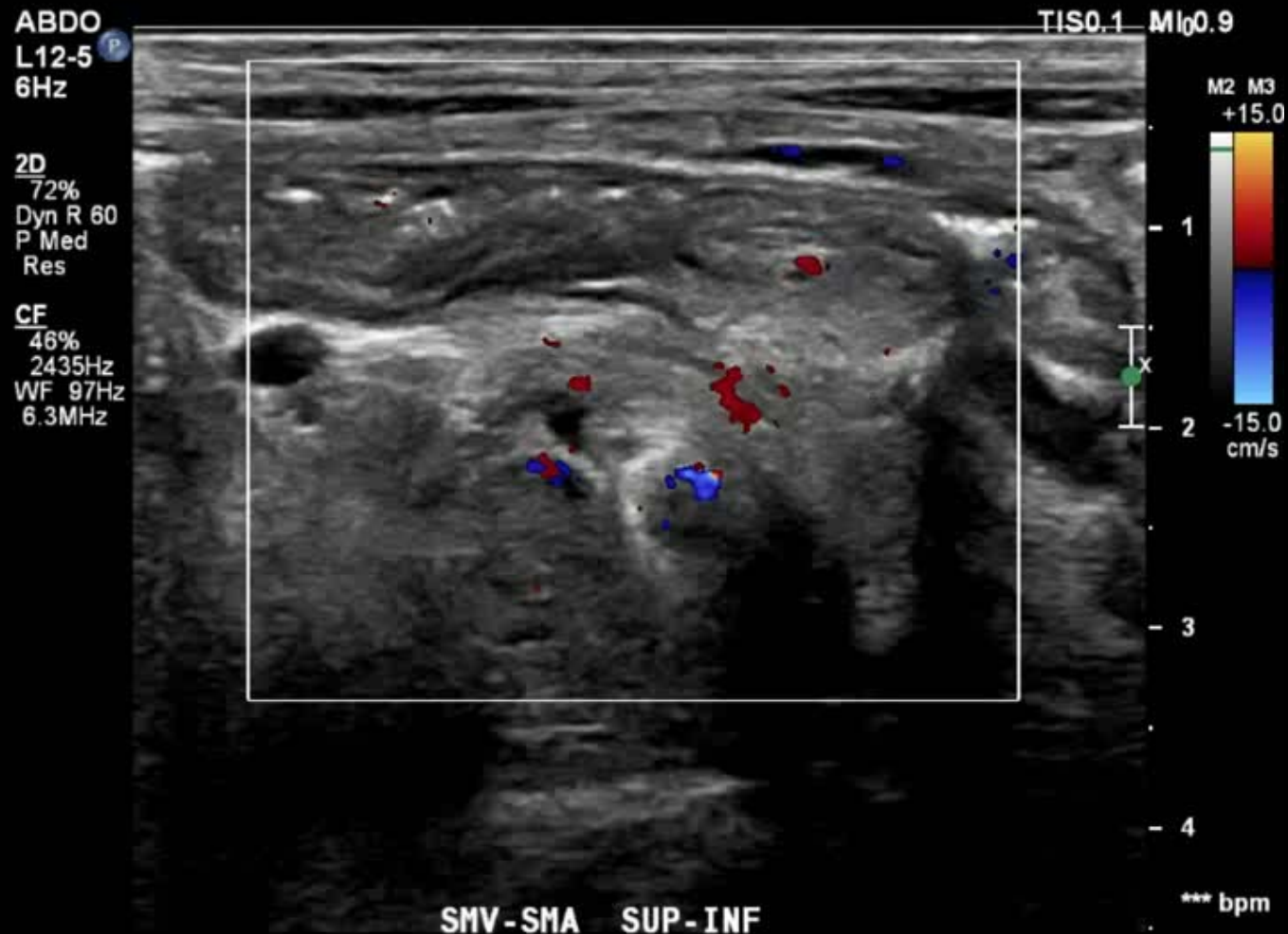
- Bowel remains in **non-rotated** position due to initial interruption of embryological rotation¹



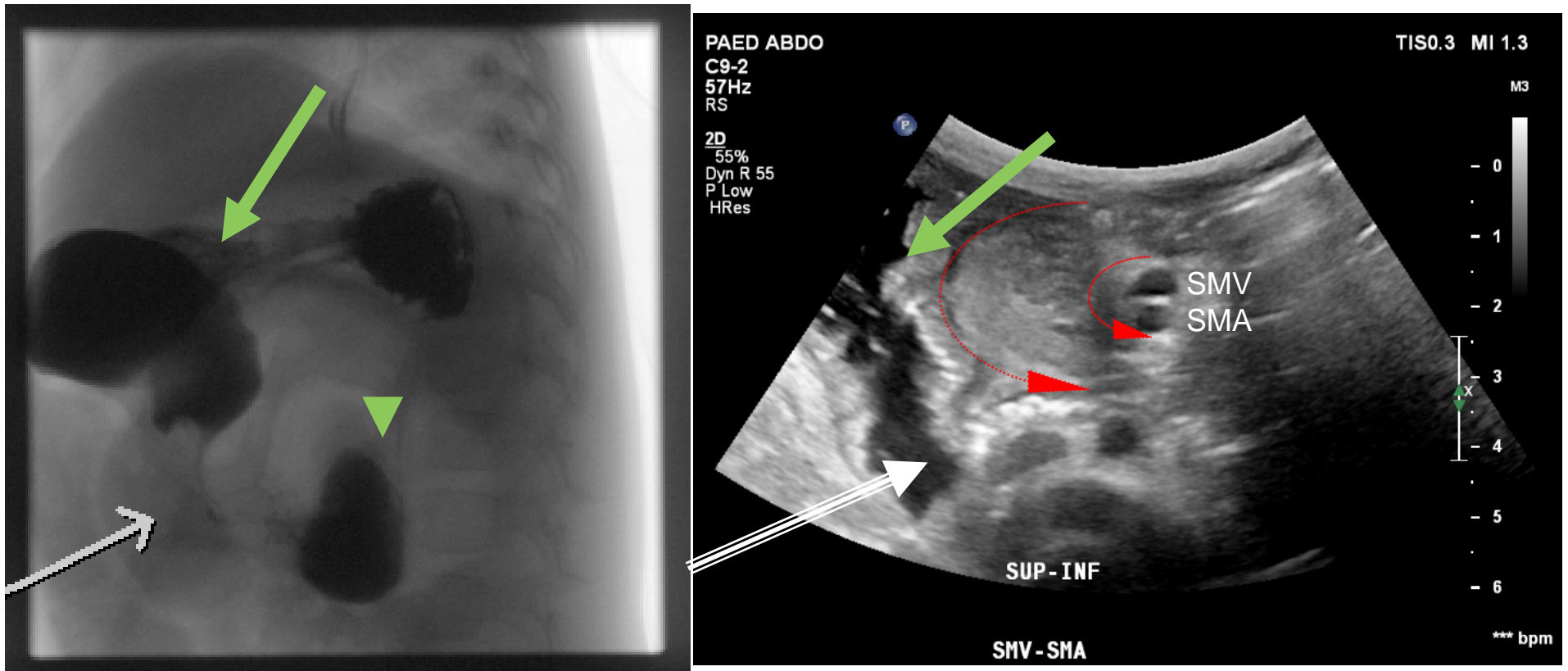
- Gastroschisis exposes bowel to amniotic fluid and handling during reduction, causing adhesions²
- Adhesions thought to anchor bowel reducing risk of volvulus (unlike omphalocele – 4x risk of volvulus²)

Sonographic whirlpool sign

- Superior mesenteric vein rotating around superior mesenteric arterial axis³



Small bowel obstruction



Contrast swallow (left) and transverse sonogram (right) showing: dilated proximal duodenum (green arrows) and distal beaking (white arrows) caused by the mass effect of the twisting bowel (red arrows), some contrast is seen passing beyond this stenosis (green arrowhead)

Follow-up and main points

- Laparotomy, adhesiolysis and Ladd's procedure performed
 - Distended jejunal segment resected and anastomosed
 - Bowel left in non-rotated position
 - Patient discharged and remains asymptomatic
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- **Gastroschisis is normally associated with non-rotation**
 - **Non-rotation and mal-rotation can be asymptomatic**
 - **The whirlpool sign indicates a possible mid-gut volvulus which is potentially life threatening – through mechanical obstruction and vascular compromise of affected bowel**



References and authorship

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3. Taori K, Sanyal R, Attarde V, et al. (2006) Unusual presentations of midgut volvulus with the whirlpool sign. J Ultrasound Med 25:99–103.

- The author declares no conflict of interest.
- Informed written consent was obtained.
- All images acquired and/or created by the author.

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